

REMARKS/ARGUMENTS

1. Claims 1-16 are pending and stand rejected.
Reconsideration of this application is respectfully requested.
2. Claims 1-7 and 10-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,006,205 to Agarwal et al. (Agarwal) in view of U.S. Patent 6,024,831 to Hwang et al. (Hwang) and paragraph [0002] to paragraph [0007] of the BACKGROUND OF THE INVENTION section of the present application (Applicant's Background section).

Independent claims 1 and 14 now recite "*... operating the reaction chamber of the semiconductor fabrication apparatus in a cleaning mode to excite the particles generated by the reaction by-product film peeling from the interior wall of the reaction chamber of the semiconductor fabrication apparatus to emit light . . .*"

Agarwal in view of Hwang and Applicant's Background section fail to describe, teach or suggest this feature, as Agarwal in view of Hwang and Applicant's Background section do not describe, teach or suggest any method that is performed during a reaction chamber cleaning mode.

Hence, claims 1 and 14 are allowable over Agarwal in view of Hwang and Applicant's Background section. Dependent claims 2-7, 10-13 and 15-16 are allowable over Agarwal in view of Hwang and Applicant's Background section for at least the same reasons as stated for claims 1 and 14.

In view of the foregoing, withdrawal of this rejection is respectfully urged.

3. Claims 8 and 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Agarwal in view of Hwang as applied to claims 1 and 7 above, and further in view of U.S. Patent 6,815,362 to Wong et al. (Wong).

Claims 8 and 9 now call for "*... operating the reaction chamber of the semiconductor fabrication apparatus in a cleaning mode to excite the particles generated by the reaction by-product film peeling from the interior wall of the reaction chamber of the semiconductor*

fabrication apparatus to emit light . . . wherein the *cleaning mode* is a stage of a waferless autoclean cycle of the apparatus.”

Agarwal in view of Hwang fail to describe, teach or suggest a method which is performed during a reaction chamber cleaning mode wherein the cleaning mode is a stage of a waferless autoclean cycle. Instead, Agarwal in view of Hwang teach a method of detecting the end points of a wafer or substrate plasma process by analyzing the optical emissions from a plasma reacting with a substrate in a plasma processing chamber.

The Examiner proposes modifying the wafer or substrate plasma process end point detection method of Agarwal in view of Hwang with the reaction chamber cleaning method of Wong for the purpose of “removing previously deposited chamber residues which has accumulated on interior surface of chamber.”

Such a combination fails to cure the deficiencies of Agarwal in view of Hwang, as Wong is only concerned with determining the endpoint of an in-situ cleaning process of a semiconductor processing chamber, and not with operating the processing chamber in a cleaning mode to in situ monitor particles generated by a reaction by-product film peeling from an interior wall of the chamber to determine its condition, as called for in claims 8 and 9.

In addition, there is no suggestion, motivation, or reason in the cited references or in the knowledge generally available to one of ordinary skill in the art to combine Agarwal in view Hwang with Wong. This is because Agarwal in view of Hwang teach methods for wafer or substrate processing, whereas Wong teaches methods for reaction chamber cleaning. There is no reason why one of ordinary skill in the art would find it obvious to try operating a reaction chamber in a cleaning mode when determining the end points of a wafer or substrate plasma process.

Further, modifications which render the prior art unsatisfactory for its intended purpose or which change the principle of operation of a reference, are not supported by any type of motivation, reason or suggestion. See MPEP 2143.01 The Examiner’s proposed modification of Agarwal in view of Hwang with Wong would destroy the purpose of the Agarwal in view of Hwang method, as this method would no longer be useful for detecting the end point of wafer or

substrate plasma processing, as wafers or substrates could not be processed while the reaction chamber is operating in a cleaning mode. Moreover, the purported modification of Agarwal in view of Hwang with Wong would impermissibly change the principle of operation of the end point detecting method of Agarwal in view of Hwang, which would no longer be operative for wafer and substrate plasma processing.

Thus, claims 8 and 9 are allowable over Agarwal in view of Hwang and further in view of Wong.

In view of the foregoing, withdrawal of this rejection is respectfully urged.

4. Favorable reconsideration of this application is respectfully requested as it is believed that all outstanding issues have been addressed herein and, further, that claims 1-16 are in condition for allowance. Should there be any questions or matters whose resolution may be advanced by a telephone call, the examiner is cordially invited to contact the undersigned attorney at his number listed below.

5. The Director is authorized to charge any payment required under 37 CFR 1.16 and any patent application processing fees under 37 CFR 1.17, which are associated with this paper, or credit any overpayment to Deposit Account No. 04-1679.

Respectfully submitted,

Date: June 25, 2007

/PAUL A. SCHWARZ/
PAUL A. SCHWARZ
Registration No. 37,577

Duane Morris LLP
P.O. Box 5203
Princeton, New Jersey 08543
(609) 631-2446 - telephone
(609) 631-2401 - facsimile